

Title (en)

COMPACT COMPLIANT CENTERING SUPPORT FOR ROLLER BEARING HAVING SQUEEZE FILM DAMPER

Title (de)

KOMPAKTE UND KONFORME ZENTRIERUNGSHILFE FÜR KUGELLAGER MIT PRESSFILMDÄMPFUNGSSCHICHT

Title (fr)

SUPPORT DE CENTRAGE ADAPTATIF COMPACT POUR ROULEMENT A ROULEAUX COMPRENANT UN COUSSIN FLUIDE AMORTISSEUR

Publication

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Application

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Priority

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Abstract (en)

[origin: US2006083448A1] The present invention provides a centering feature to the bearing assembly of a turbomachine to provide optimum operating characteristics of the squeeze film damper. Unlike conventional bearing centering methods and apparatus, a compact compliant centering support for the squeeze film damper interfaces between a bearing outer race, and an outer support structure. The compact design is lightweight and inexpensive, can be retrofitted easily to an existing turbomachine, such as a turbine and compressor, for improved rotor dynamic performance. The compact compliant centering support damper may be comprised of a ring with bumpers spaced around the circumference at the inside and outside diameters to form spring elements between the bumpers. The centering support may lift the rotor inside the squeeze film cavity and may eliminate rotor weight effect on the damper performance. The centering support may be offset in the vertical direction to center the rotor under 1 g deflection to eliminate rub at the 6 o'clock location of a compressor or turbine shroud. Tangential grooves may be provided on the centering support outer bumpers to allow oil to squeeze out when the centering support is deflected to provide additional viscous damping. The outer bumper height may be controlled to limit maneuver deflection of the rotor.

IPC 8 full level

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